



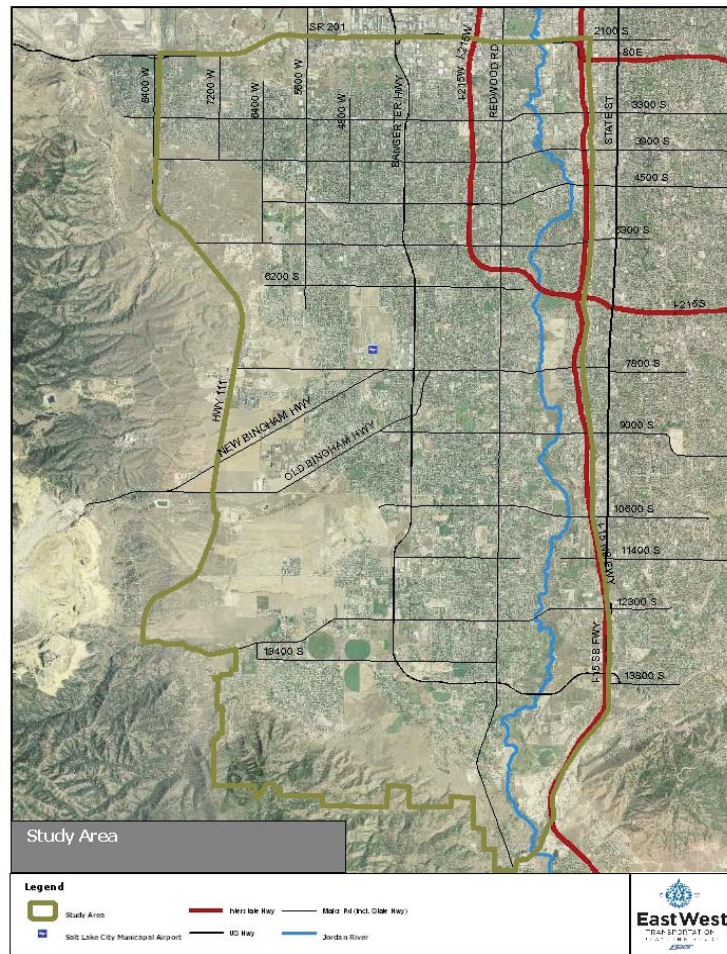
SUMMARY

S1. EAST-WEST TRANSPORTATION PLANNING STUDY

The East-West Transportation Planning Study objective stems from Utah House Bill 108, Section 1, (1), which requires the Utah Department of Transportation (UDOT) to study the need for east-west transportation improvements in Salt Lake County for the area depicted in Figure S-1. Because of Kennecott Land's anticipated population growth and its subsequent influence on traffic patterns within the study area, particularly the east-west movements, a planning area was created that includes both the study area and land owned by Kennecott Land west of SR 111. While the planning area is included in this analysis to assess impacts to traffic patterns within the study area, this plan does not make any recommendations for transportation improvements west of SR 111. The East-West Transportation Planning Study focuses on three primary goals that were executed in a series of three phases. The goals of the study are:

1. Determine and document the current and future transportation needs within the study area. *(Phase I)*
2. Identify and evaluate possible transportation system improvements to satisfy the needs. *(Phase II)*

Figure S-1. Study Area and 2005 Roadway System





3. Suggest an implementation schedule for the recommended transportation system improvements and a list of near-term improvements. (*Phase III*)

The following is a summary of assumptions and findings by topic for the project.

S2. CURRENT AND FUTURE DEMOGRAPHICS CONDITIONS

In 2005, the planning area population was approximately 465,400, with approximately 131,700 households and 177,300 employees.

To establish the planning area's 2030 base socioeconomic data, two data sets were used. For the area east of SR 111, socioeconomic data adopted by the Wasatch Front Regional Council (WFRC) was utilized; for the area west of SR 111, Kennecott Land's projected growth data was used.

The 2030 Beyond scenario depicts a timeframe beyond 2030 that was not restricted by WFRC constraints. To establish the 2030 Beyond socioeconomic data for the planning area, information was collected from various stakeholders and representatives of local jurisdictions.

Table S-1 and Table S-2 summarize the anticipated socioeconomic changes for the planning area for the planning years 2005, 2030, and 2030 Beyond. The highlights of the findings are an estimated 125 percent increase in population, 113 percent increase in employment, and 165 percent increase in number of households.

Table S-1. Population Growth Comparison

Planning Area	2005 Population	2030 Population	2005-2030 % Growth	2030 Beyond Population	2030-2030 Beyond % Growth
	465,393	806,390	73.27%	1,041,335	29%

Table S-2. Future Employment Data Comparison

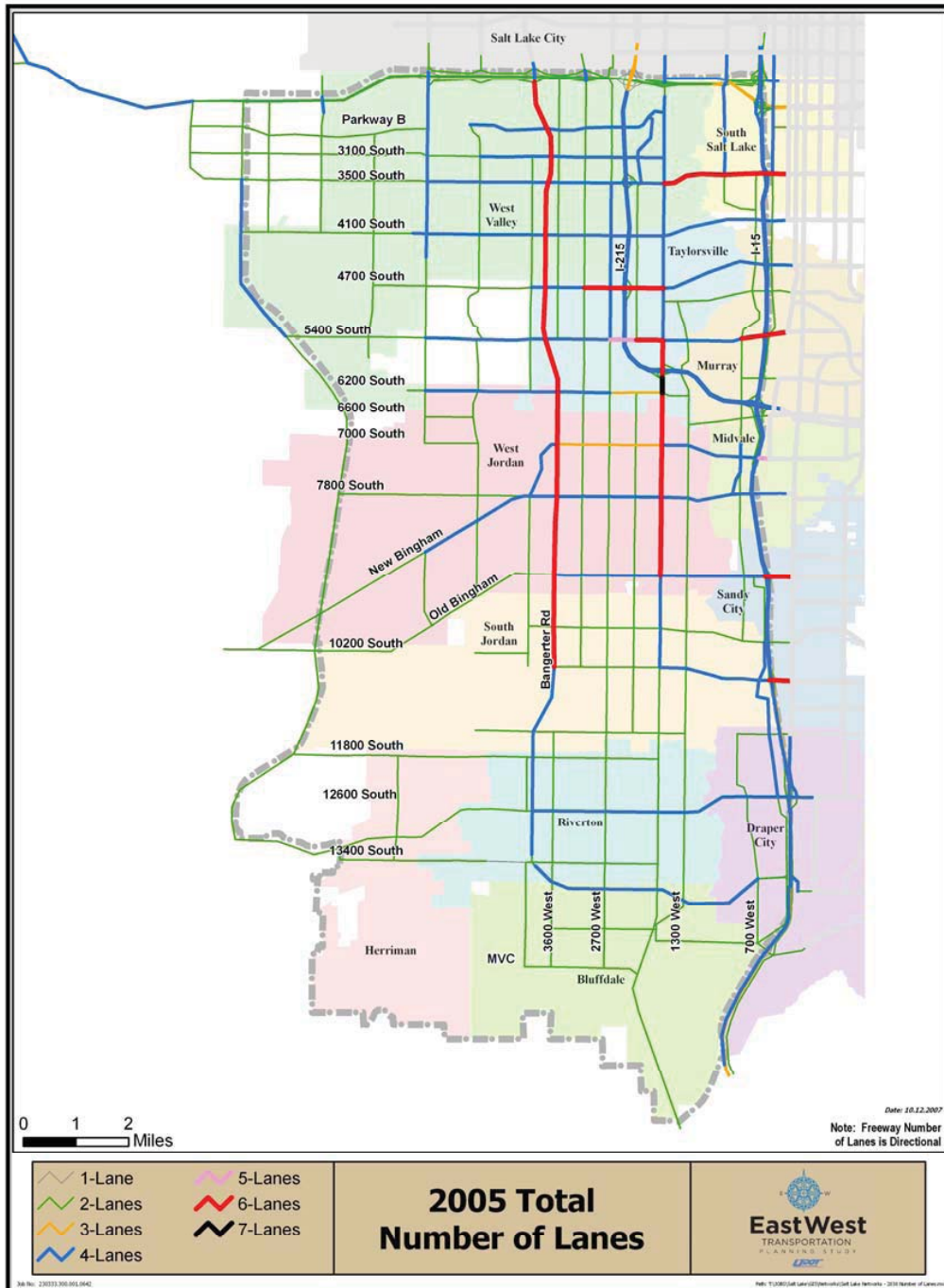
Planning Area	2005 Employment	2030 Employment	2005-2030 % Growth	2030 Beyond Employment	2030-2030 Beyond % Growth
	177,273	339,857	91.71%	377,771	11%

S3. CURRENT AND FUTURE ROADWAYS

Figure S-2 illustrates the roadway system considered for the 2005 conditions. Figure S-3 displays the roadway system for the 2030 and 2030 Beyond scenarios, with the respective number of lanes. It should be noted that Figure S2 includes the entire recently adopted *Wasatch Front Regional Transportation Plan: 2007-2030 (2030 RTP)* improvements east of SR 111, as well as Kennecott Land's potential future roadway system west of SR 111, as of July 2007.



Figure S-2. 2005 Base Roadway Number of Lanes





S4. FUTURE TRAFFIC ASSUMPTIONS AND CONDITIONS

The 2030 roadway system and the 2030 Beyond socioeconomic data were used to identify future needs in the study area.

The WFRC travel demand model was modified to include the refined Kennecott Land's growth area west of SR 111 and was used to identify anticipated future traffic volumes.

Locations on major east-west routes and on major north-south routes in the study area were identified to quantify travel demand and for comparison purposes.

The following are the major traffic mobility findings in the study area.

- The 2030 Beyond total daily traffic volumes traveling on north-south facilities are approximately two to five times greater than the ones observed in 2005. This increase is primarily due to the presence of the Mountain View Corridor being included in the 2030 roadway system.
- The 2030 Beyond total daily traffic volumes traveling on east-west facilities are approximately two to three times greater than the ones observed in 2005. This increase is likely due to the population increase occurring west of SR 111 from Kennecott Land's development.
- Daily vehicle miles traveled (VMT) and vehicle hours traveled (VHT) in the study area will increase by approximately 300 percent from 2005 to 2030 Beyond. This increase translates in longer trip lengths and more time spent in the vehicle.
- Twenty-one percent of the east-west facilities were considered to be highly congested in 2005, while 48 percent of the east-west facilities are projected to be highly congested at Beyond 2030. Highly congested urban arterials usually exhibit a level of service (LOS) between E and F.*
- Nineteen percent of the north-south facilities were considered to be highly congested in 2005, while 50 percent of the north-south facilities are projected to be highly congested Beyond 2030.



*This is an example of a highly congested urban arterial that exhibits a level of service between E and F.



- Overall, the travel time along most major routes in the study area will almost double between 2005 and 2030 Beyond. This increase of congestion and travel time is projected to occur even when all planned improvements featured in the adopted Wasatch Front 2030 RTP are accounted for. To address these future travel demand conditions, additional traffic mobility improvements and/or strategies are needed.

S5. INITIAL SYSTEM ALTERNATIVES DEVELOPMENT

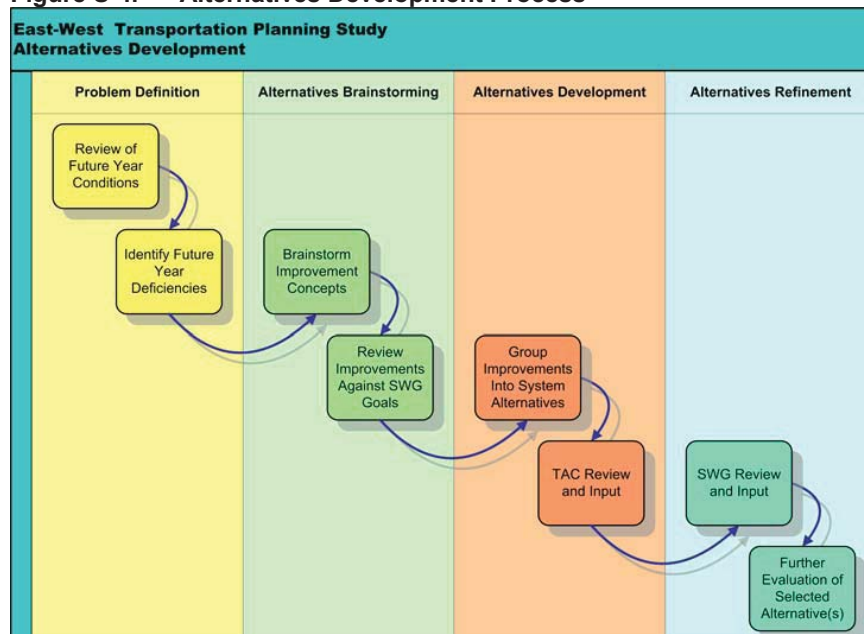
A brainstorming session was held on November 19, 2007, to begin the alternatives development process using the future conditions findings. The study area was divided into three subareas—North, Central, and South—to facilitate the development process.

The Brainstorming Team identified transportation concepts (roadway, transit, ITS) to reduce or alleviate future mobility problems for each subarea, then packaged them into three system alternatives for further analysis and consideration.

Recommendations and priorities identified by the Stakeholder Working Group (SWG) at its initial meeting were considered in the brainstorming session.

Figure S-4 depicts the process used in the development of three System Alternatives

Figure S-4. Alternatives Development Process





The three System Alternatives were presented to the SGW and a Focus Group for input and comments.

During the SWG meeting, jurisdictions were given the opportunity to identify up to five elements of an alternative that they liked the most and five elements of an alternative that they liked the least.

Based on the results of the SWG and public inputs, the improvements were consolidated into two new alternatives for further development and analysis. Figure S-5 and Figure S-6 display Alternative 4 and Alternative 5, respectively. Alternative 4 includes more arterial and transit improvements, while Alternative 5 includes more arterial and freeway improvements. Specific improvement details are described in Chapter 7.0.

S6. PERFORMANCE AND EVALUATION OF THE SYSTEM ALTERNATIVES

The WFRC regional travel demand model developed for this project was used to produce the data needed to assess the alternative performance. The following are the model assumptions with respect to the socioeconomic, roadways, and transit system characteristics.

- Stakeholders provided future development plans and projected growth that reflected known future plans as of August 2007. Although some jurisdictions revised their land use development timeframes during the course of the study, these changes were not incorporated in this study. Since this study is considering the long-range horizon need, it was assumed that the developments will be in place Beyond 2030.
- The 2030 network used in the generation of 2030 Beyond scenario travel projections was updated to incorporate the improvement projects adopted by WFRC in the Long Range Transportation Plan amendment adopted in May 2008.
- Transit improvements were categorized into “extension to existing or already programmed improvements” or “new corridors identified during this study.”



Figure S-5. Alternative 4

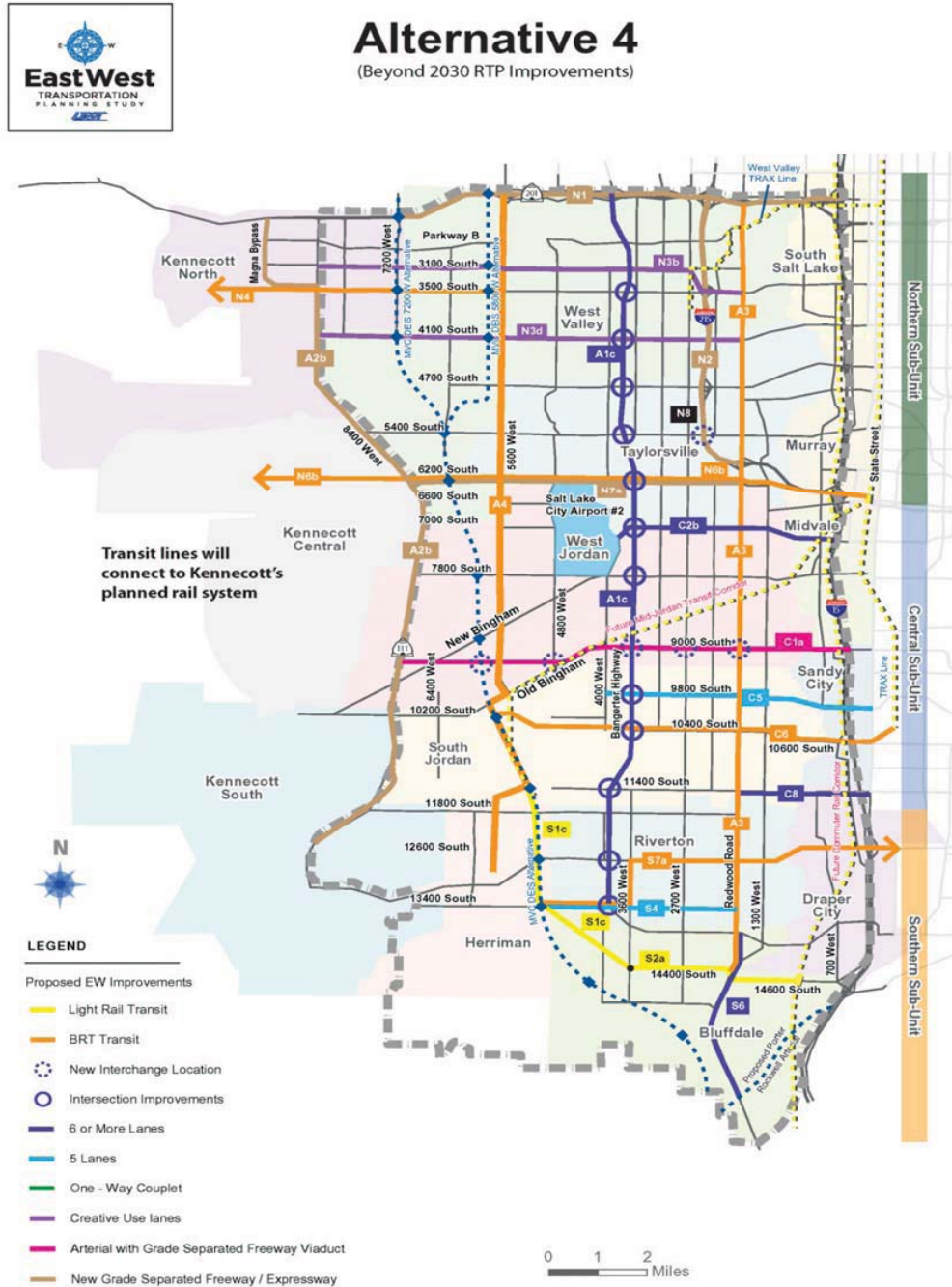
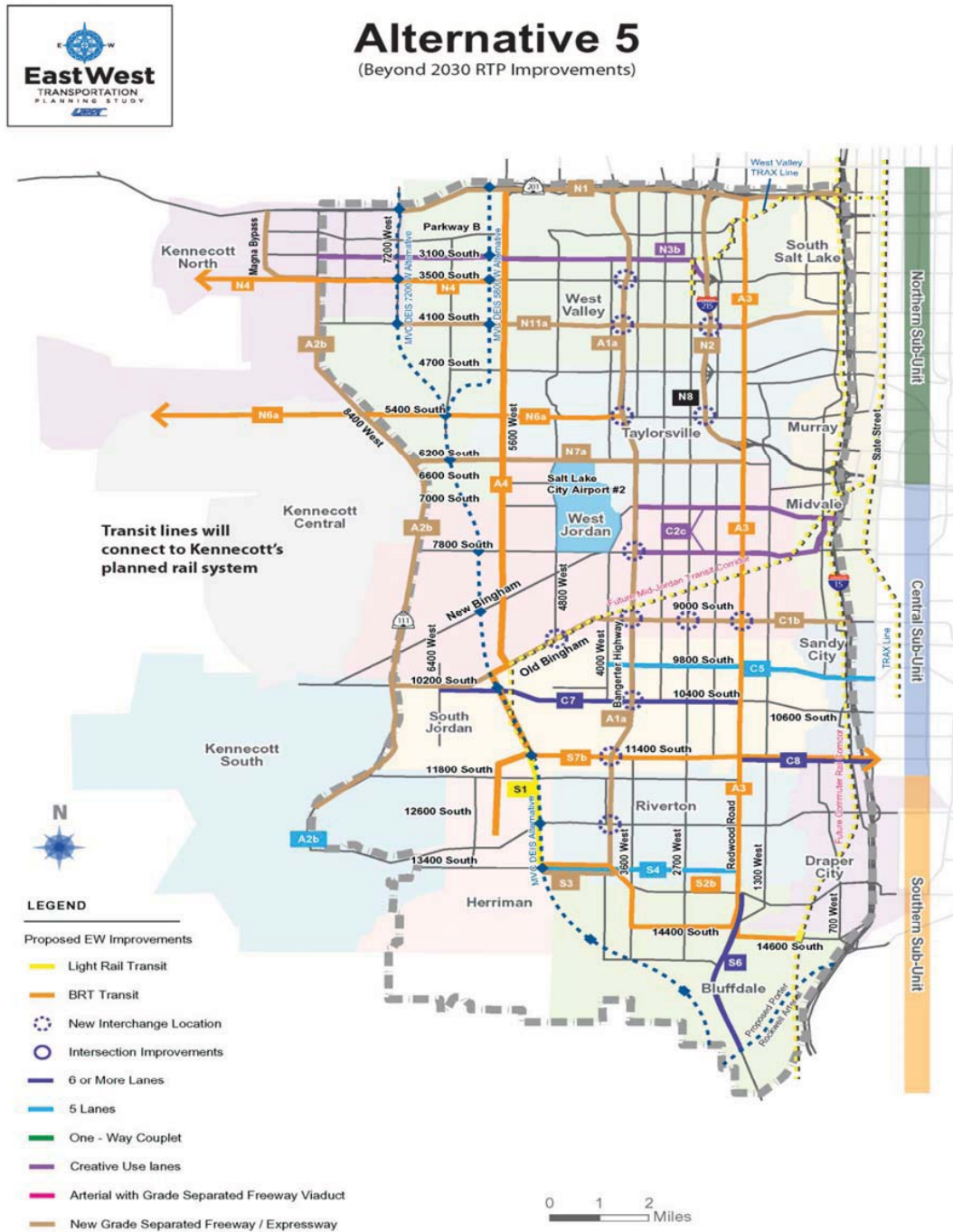




Figure S-6. Alternative 5





Each alternative was evaluated to determine the performance of the multimodal system with respect to standard industry criteria, as well as potential economic impact to the area. The results can be summarized as follows:

- Traffic Volumes and level of service (LOS) improved in both alternatives when compared to the 2030 Beyond scenario. Alternative 4 displays some congestion improvement along I-15, Mountain View Corridor, and Bangerter Highway south of 11800 South. Minor arterial congestion relief can also be seen throughout the study area. Alternative 5, however, shows marked improvements along I-15, Mountain View Corridor, and Bangerter Highway. Arterials in the study area also display significant improvement in the LOS.
- The screenline analysis is used to quantify the east-west and north-south mobility demand and to determine the effects of the alternatives improvements. Table S-3 displays the congested number of links for each alternative. As can be seen, the improvements are reducing congestion in the study area

Table S-3. Screenline Locations With LOS E or F			
Screenlines	2030 Beyond	Alternative 4	Alternative 5
North-South (80 Links)	40	29	24
East-West (67 Links)	35	34	28

- Alternative 4 and Alternative 5 improve the overall travel time on each corridor compared to the 2030 Beyond scenario. Marked improvements in travel time are noted between 2030 Beyond and Alternative 5 with respect to corridors comprising freeways and higher-level facilities.
- The VMT remained in the 21,000,000 range for both alternatives; however, the VHT decreased in both alternatives, with Alternative 5 showing the largest decrease of 15 percent. This is also reflected in the average system speed within the study area which increased from 39.31 mph in the 2030 Beyond scenario to 46.25 mph in Alternative 5.
- A planning level review of potential residential and commercial relocations was conducted to ascertain the economic impact of the suggested improvements. Table S-4 summarizes the potential relocations for each alternative.

Table S-4. Potential Relocations by Alternative			
	Residential	Commercial	Total
Alternative 4	671	133	804
Alternative 5	821	124	945



- A planning level cost analysis was performed for each improvement. Base costs per unit were developed to calculate the capital cost total for each improvement. Capital costs include construction, utility, design engineering, and construction engineering. Details of the costs are found in Appendix C.

S7. SUGGESTED SYSTEM ALTERNATIVE

Based on the technical analysis and input and comments from the SWG, the final Suggested System Alternative was formulated and is displayed in Figure S-7.

It proposes both roadway and transit improvements, with an emphasis on higher-level roadway facilities widening. Proposed transit improvements favor Bus Rapid Transit (BRT) and light rail transit extension or new service corridors.

Performance measures were calculated for the Suggested System Alternative and compared to the 2030 Beyond scenario with the following results:

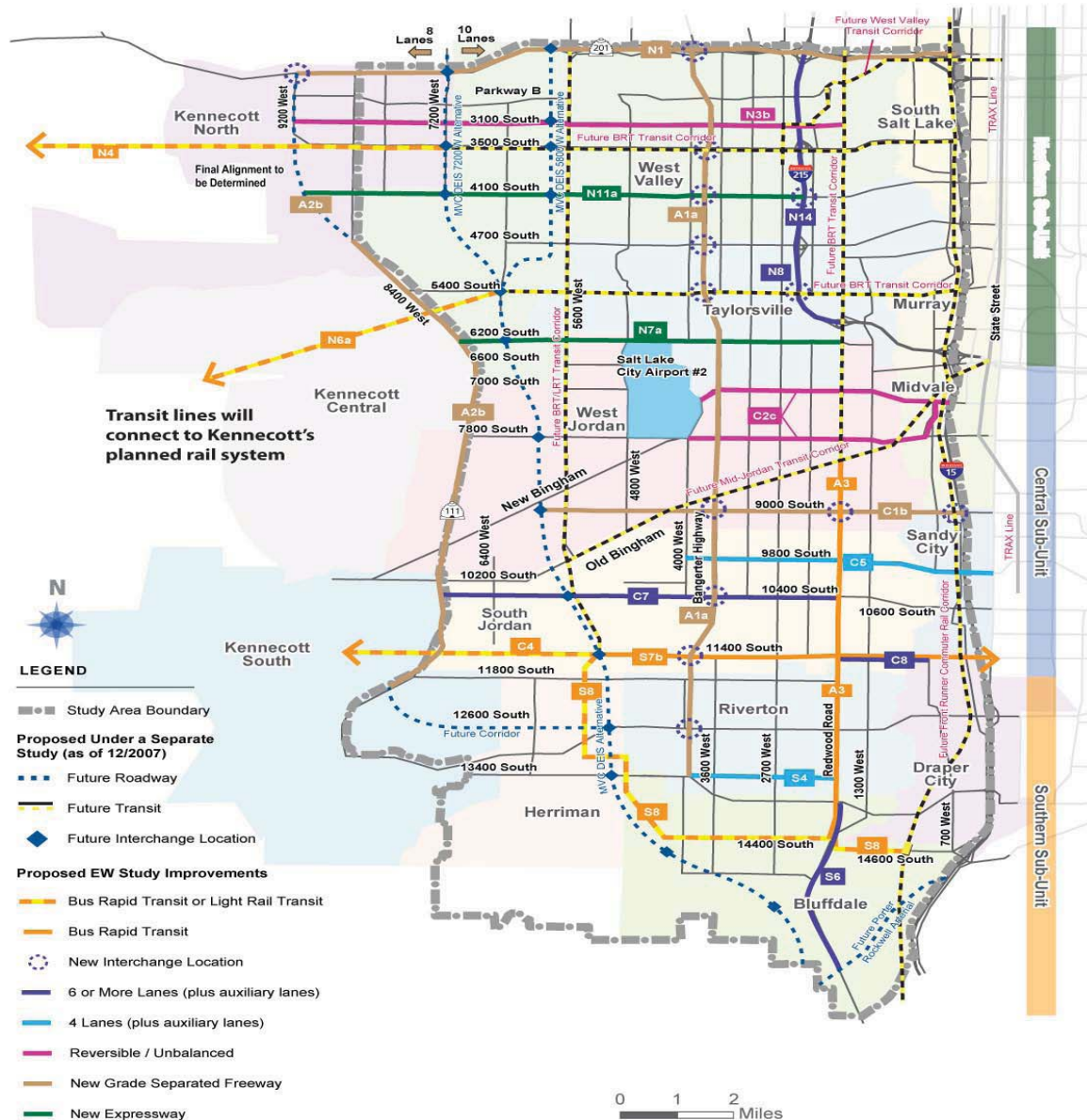
- 43 percent reduction in the North-South travel and 26 percent reduction in congestion in the east-west travel.
- Overall system travel speed increased from 39.31 mph to 47.40 mph.
- Air quality analysis was performed for the Suggested System Alternative that showed compliance with EPA emission budgets in the study area for all pollutants.



Figure S-7. Suggested System Alternative

POTENTIAL IMPROVEMENTS

The potential improvements are an addition to the planned improvements included in the Wasatch Front Regional Council's (WFRC) 2030 Regional Transportation Plan (RTP). The map below does not identify all the RTP improvements.





S8. IMPLEMENTATION PLAN

The implementation plan incorporates all of the proposed improvements associated with the Suggested System Alternative and proposes a schedule and yearly budget. This implementation plan is based on a number of considerations:

- Cost benefit analysis.
- Budget normalization.
- The *Wasatch Front Regional Transportation Plan: 2007-2030 (2030 RTP)* sequencing and opportunities to coordinate the new projects with work that is already considered as part of the current 2030 RTP.
- Current 2030 RTP costs.
- Various stake holder priorities.
- Anticipated need for the proposed facilities.
- Anticipated availability of precedent infrastructure and development.

The implementation plan methodology is presented in details in Chapter 9.0. Table S-5 shows the primary details of the plan—the project, proposed start date, proposed project duration (including right-of-way procurement), project cost (considering the project start date and inflation cost increases), and travel time savings associated with the improvements. This implementation plan is adjustable and would reflect different yearly costs if the individual proposed improvements were allocated differently.

Table S-5. East-West Arterial Implementation Plan Proposal

	Project Description	Start	Schedule (yrs)	Cost ¹	Travel Time Savings ¹
N1	SR 201 widening	2021	7	\$3,642	\$612
N3b	3100 South reversible lane	2009	2	\$44	\$206
N4	BRT/LRT-3500 South extended from 7200 West	2022	3	\$41	-
N6a	BRT/LRT-5400 South extended from Bangerter	2025	3	\$61	-
N7a	6200 South widening	2014	6	\$407	\$676
N8	I-215 half-diamond interchange at 5400 South	2011	2	\$117	-
N11a	4100 South convert to expressway	2010	5	\$758	\$453
N14	I-215 upgrade	2017	4	\$771	\$1,032
C1b	9000 South freeway conversion 6 lanes	2015	5	\$2,903	\$698
C2c	7000/7800 South reversible lanes	2010	2	\$40	-
C4	Mid-Jordan Line LRT Extension to Kennecott	2038	2	\$446	-



Table S-5. East-West Arterial Implementation Plan Proposal

	Project Description	Start	Schedule (yrs)	Cost ¹	Travel Time Savings ¹
C5	9800 South widening	2009	2	\$127	\$406
C7	10400 South widening	2021	4	\$241	\$110
C8	11400 South widening	2022	2	\$79	\$68
S4	13400 South widening	2030	1	\$99	\$53
S6	Redwood Road widening	2020	2	\$75	\$70
S7b	BRT-11400 South from Mid-Jordan line	2015	3	\$165	-
S8	BRT/LRT-Mid-Jordan extension	2031	10	\$1,329	-
A1a	Bangerter Highway freeway conversion	2009	7	\$767	\$5,237
A2b	Widen SR 111 to a 6 lane expressway	2028	10	\$3,568	\$478
A3	BRT-Redwood Road extended from 7800 South	2038	2	\$27	-
Total				\$15,708	\$9,004
¹ Dollars in Millions					

S9. NEAR-TERM IMPROVEMENTS

Near-term solutions were developed to improve the mobility in the study area within the next five years. The following steps were used to classify and address the mobility issues:

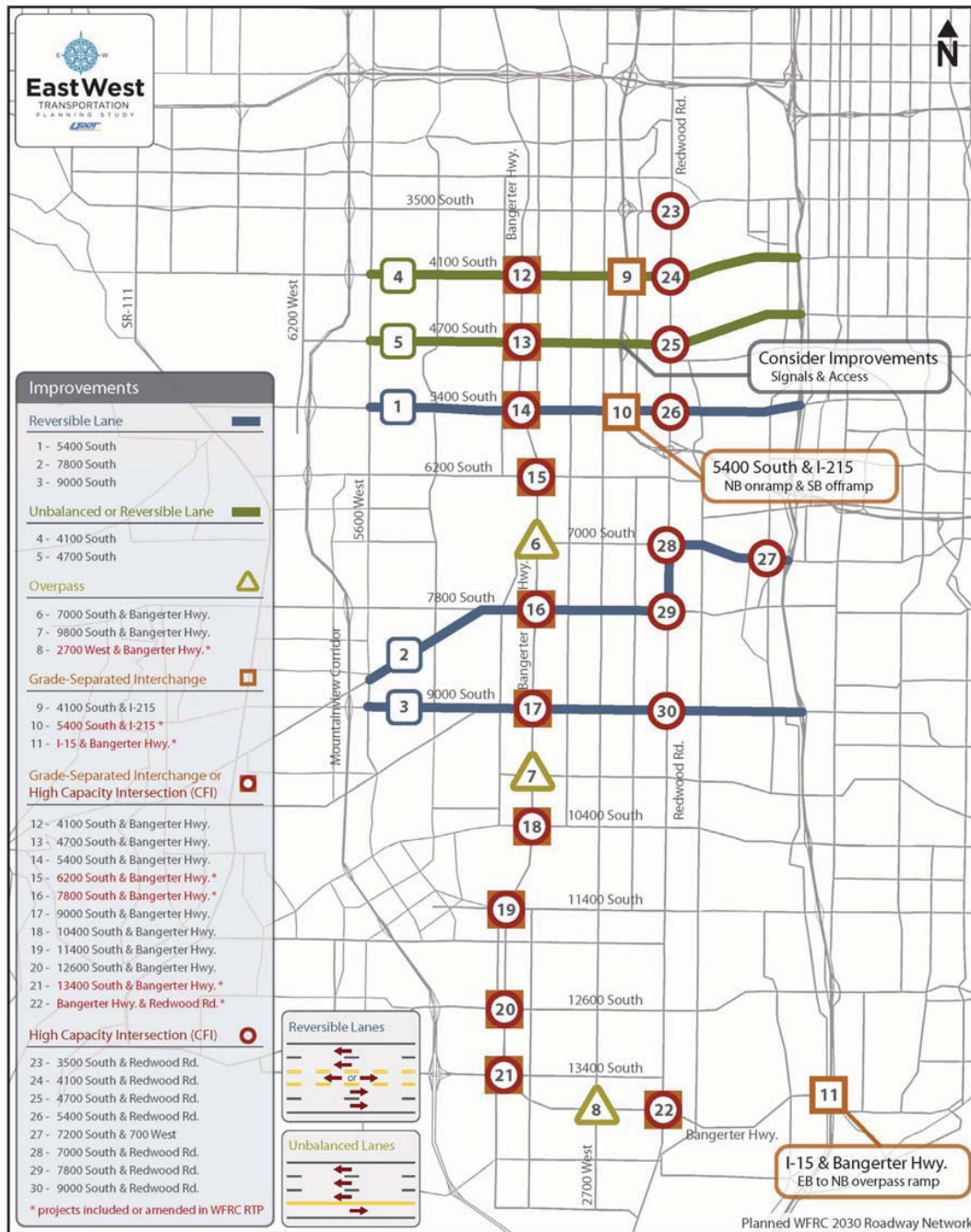
- Identify choke points and capacity deficient corridors and intersections in need of improvements.
- Identify innovative capacity and intersection improvement strategies.
- Identify improvements that would improve the east-west traffic flow along an entire facility using low cost solutions.

Figure S-8 illustrates the locations and recommendations for proposed near-term improvements. As depicted in the illustration, improvements were focused along key east-west facilities in the southwest quadrant of the Salt Lake Valley.

Planning level costs were generated for the near-term improvements. Detailed tables are presented in Chapter 10.0.



Figure S-8. Near-Term Improvement Concepts



East-West Study Near-Term Improvement Concepts

September 8, 2008

Proposed concepts to improve transportation mobility in the near term.



S10. PUBLIC PARTICIPATION PLAN

- *The public involvement goals* throughout the study were to increase understanding of the process required to make improvements, educate stakeholders on the public of existing and planned transportation improvements, facilitate informed stakeholder dialogue focused on the greatest good for the community, increase understanding of the impacts related to east-west transportation system improvements, and facilitate local ownership of the study process.
- *Stakeholder Working Group* involved mayors and transportation representatives from each planning-area jurisdiction, Kennecott Land, the Wasatch Front Regional Council, the Utah Transportation Commission, Utah Transit Authority, and the Utah Department of Transportation (UDOT).
- *Website Information* was available through a specific website created for the project (udot.utah.gov/slcountyeastwest). Information about the SWG, links to related projects and studies in the study area, participant information, comment areas, and other information were posted on the website.
- *City Council meetings* were conducted for planning-area city councils and other key organizations to involve, educate, and identify issues unique to each community and group. The meetings occurred between July through October 2007 to introduce the study and June through August 2008 to give a study update and solicit feedback for the study's Public Review Period.